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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/647,475

08/26/2003

Lim Su Lee

8733.311.10-US

2307

30827

7590

05/27/2009

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EXAMINER

MARKOFF, ALEXANDER

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

05/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/647,475	Applicant(s) LEE, LIM SU	
	Examiner Alexander Markoff	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13, 16, 18, 28-30, 32 and 34-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 16, 18, 28-30, 32 and 34-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/10/09 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 13, 16, 18, 28-30, 32 and 34-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

4. The applicants amended the claims to recite jetting water with a pair of sonars. Such was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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Sonar is an apparatus for emitting sounds, not liquids.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 13, 16, 18, 28-30, 32 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moinpour et al (US Patent No 5,901,399) in view of Fishkin et al (US Patent No 6,202,658) and Hashimoto et al (US Patent No 6,261,378).

Moinpour et al and Fishkin et al both teach cleaning substrates with brushes and sprays. Both documents are concerned about cleaning side surfaces of the substrates during cleaning of the main surfaces. Both documents teach brushing of the main surfaces and spraying the side surfaces. Moinpour et al teach the use of cylindrical brushes and a liquid jet to clean the side surfaces. See at least Figures 2c, 3, 6 and 7 and the related description. The document does not specify whether or not the liquid jet

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is energized. Fishkin et al teach the use of ultrasonic liquid jet to clean the side surfaces. Having the combined teachings of the cited documents it would have been obvious to an ordinary artisan at the time the invention was made to incorporate ultrasonic spray cleaning of Fishkin et al in the method of Moinpour et al to further enhance disclosed cleaning because the documents teach the action of brushes and ultrasonics to solve the same problem. An ordinary artisan would have been reasonably expected that the use of combined action would improve the side cleaning results. It would have also been obvious to include the referenced spray cleaning before, at the same time or after the brushing with reasonable expectation of adequate results

Moinpour et al and Fishkin et al do not specifically recite application of their methods to LCD substrates. Both of the documents are mainly directed to cleaning semiconductor wafers. Fishkin et al, however, teach that the method can be applied to glass substrates.

Hashimoto et al teach that the same method of cleaning are conventionally applied to semiconductor wafers and glass substrates, such LCD glass substrates.

The LCD substrates conventionally have a rectangular shape.

Having combined teachings of Moinpour et al, Fishkin et al and Hashimoto et al it would have been obvious to an ordinary artisan at the time the invention was made to apply a modified method of Moinpour et al to LCD glass substrates with reasonable expectation of success in order to have the substrates cleaned.

As to the limitation requiring moving of the substrate in a linear direction and the brushes being parallel to the referenced direction: it is noted that Moinpour et al show

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that in a scrubber the substrate is not only rotated, but also is moving through the scrubber in a linear direction. See at least Figure 3 the related description. It would have been obvious to an ordinary artisan at the time the invention was made that the brushes shown on Figures 2c, 6, and 7 should be parallel to the direction of the movement at least at some time to enable the movement.

As to the limitation requiring cleaning of two side surfaces: It would have been obvious to an ordinary artisan at the time the invention was made that all surfaces of the LCD substrate should be cleaned. It would have been obvious to an ordinary artisan at the time the invention was made to provide and use an additional brush and an additional spraying device in the modified method of Moinpour et al in order to clean opposing surfaces of the LCD substrate in a single move in order to enhance cleaning. It is noted that, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Response to Arguments

8. Applicant's arguments filed 8/28/08 have been fully considered but they are not persuasive.

The applicants amended the claims and allege that the applied combination of documents does not teach the limitations of the amended claims.

The applicants argue that in Moinpour and Fishkin the wafer has one side and that the one side is brushed using one side brush.

The applicants further argue that in Moinpour and Fishkin one side is jetted with one or two jets.

The applicants allege that the combination of Moinpour and Fishkin cannot obtain the claimed features of brushing and jetting two opposite side surfaces.

This is not persuasive.

First, it is noted that the rejection is made over Moinpour in view of Fishkin and Hashimoto et al.

The teaching of Hashimoto et al is used to show that the same methods of cleaning are conventionally applied to semiconductor wafers and glass substrates, such LCD glass substrates.

Having combined teachings of Moinpour et al, Fishkin et al and Hashimoto et al it would have been obvious to an ordinary artisan at the time the invention was made to apply a modified method of Moinpour et al to LCD glass substrates with reasonable expectation of success in order to have the substrates cleaned. The LCD substrates conventionally have a rectangular shape.

It would have been obvious to an ordinary artisan at the time the invention was made that all surfaces of the LCD substrate should be cleaned. It would have been obvious to an ordinary artisan at the time the invention was made to provide and use an additional brush and an additional spraying device in the modified method of Moinpour et al in order to clean opposing surfaces of the LCD substrate in a single move in order to enhance cleaning. It is noted that, it has been held that mere duplication of the

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essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Further, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alexander Markoff
Primary Examiner
Art Unit 1792

/Alexander Markoff/
Primary Examiner, Art Unit 1792